

- Pellorneum capistratum* BLACK-CAPPED BABBLER. 23-27; 25.10, 1.52 ( $n=10$ ).  
*Trichastoma malaccense* SHORT-TAILED BABBLER. 17-26; 21.45, 2.28 ( $n=20$ ).  
*Trichastoma bicolor* FERRUGINOUS BABBLER. 27, 28, 29, 29, 30, 31, 31, 34.  
*Trichastoma sepiarium* HORSFIELD'S BABBLER. 23-29; 25.46, 2.21 ( $n=11$ ).  
*Malacopteron cinereum* SCALY-CROWNED BABBLER. 15-21; 18.07, 1.68 ( $n=56$ ).  
*Malacopteron magnum* RUFOUS-CROWNED BABBLER. 22-34; 27.23, 3.25 ( $n=26$ ).  
*Malacopteron albugulare* GREY-BREASTED BABBLER. 14-18; 16.47, 1.19 ( $n=15$ ).  
*Kenopia striata* STRIPED WREN-BABBLER. 19, 20, 20, 20, 21.  
*Stachyris maculata* CHESTNUT-RUMPED BABBLER. 26-33; 29.17, 2.04 ( $n=24$ ).  
*Stachyris nigricollis* BLACK-THROATED BABBLER. 23-31; 26.23, 2.24 ( $n=13$ ).  
*Stachyris erythroptera* CHESTNUT-WINGED BABBLER. 12, 13, 13, 13, 13, 14, 14, 14.  
*Macronous ptilosus* FLUFFY-BACKED TIT-BABBLER. 19.  
*Copsychus malabaricus* WHITE-RUMPED SHAMA. 31-42; 36.10, 4.33 ( $n=10$ ).  
*Copsychus pyrropygus* RUFOUS-TAILED SHAMA. 41, 43, 44, 46.  
*Enicurus ruficapillus* CHESTNUT-NAPED FORKTAIL. 27.  
*Enicurus leschenaulti* WHITE-CROWNED FORKTAIL. 27, 29, 30, 38.  
*Rhinomyias umbratilis* GREY-CHESTED FLYCATCHER. 15-21; 18.23, 1.29 ( $n=47$ ).  
*Rhipidura perlata* SPOTTED FANTAIL. 13, 16.  
*Philentoma pyrhopterum* RUFOUS-WINGED FLYCATCHER. 17, 19, 19, 20, 20, 21, 21, 22, 22.  
*Terpsiphone paradisi* ASIAN PARADISE-FLYCATCHER. 21.  
*Hypogramma hypogrammicum* PURPLE-NAPED SUNBIRD. 10, 12, 12, 12, 12, 13, 13, 13.  
*Aethopyga mystacalis* SCARLET SUNBIRD. 6.  
*Arachnothera longirostra* LITTLE SPIDERHUNTER. 9-16; 12.60, 1.66 ( $n=47$ ).  
*Prionochilus maculatus* YELLOW-BREASTED FLOWERPECKER. 6-9; 7.09, 0.71 ( $n=34$ ).

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## Recent extensions of range in the House Crow *Corvus splendens*

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The House Crow *Corvus splendens* has a native distribution stretching from Southern Iran, throughout the Indian Subcontinent to South Yunnan in China, and from Nepal to Sri Lanka. They are versatile

human commensals, feeding primarily on refuse supplemented with stolen food, crops, young of domestic fowl, and by predation of smaller birds and invertebrates. In recent decades they have dramatically increased their range and now populate many areas bordering the Red Sea, Indian Ocean and its islands. They have reached Australia on numerous occasions and in 1991 a House Crow arrived in Gibraltar. In most of these sites they have proliferated to pest proportions as crop raiders, destroyers of native avifauna and public health risk, so that control measures have been implemented at several locations.

House crow distribution and status has been reviewed by several authors (Ali & Ripley 1972, Meininger *et al.* 1980, Bijlsma & Meininger 1984, Goodwin 1986, Lever 1987). The following paper updates and supplements these works using both published data and unpublished observations.

### Native distribution

The five races of *Corvus splendens* are distinguished primarily on the colour shade of their grey hood, which occupies the nape, upper mantle and upper breast, much as in the Jackdaw *Corvus monedula*. Their distributions are as follows:

*C. s. splendens* is found throughout India, except for Kerala and the northwest. It is also present in Bangladesh, Nepal, Sikkim, Bhutan and Assam.

*C. s. zugmayeri* has a westerly range, from Kashmir and northwest India to coastal southern Iran as far as Kharg Island, and north to Khost in Afghanistan.

*C. s. protegatus* is restricted to Sri Lanka and Kerala, on the adjacent Indian mainland.

*C. s. maledivicus* is found only in the Maldive Islands.

*C. s. insolens* has an easterly range, through Burma south to Tenneserrim, southwest Thailand and west Yunnan.

### Introduced distribution

The House Crow has, during the past 100 years, become established in many inhabited parts of the Indian Ocean seaboard and its islands. A country by country description follows, giving a brief history and present status.

#### Middle East

In the last 15 years House Crows have established in all main ports on the Arabian Peninsula whilst remaining absent inland, even in populous areas with plentiful refuse tips and water (M. C. Jennings). Many feed on fish offal and garbage in fishing villages.

#### Saudi Arabia

The species was first recorded in Jedda in 1978 (Jennings 1981a) and is now a common breeding bird. Baldwin & Meadows (1987) observed

a flock of 15 House Crows in the port of Yanbu, 300 km to the north, in 1986. They were first seen in the Eastern Province in 1980 and were breeding by 1983. In 1987, a large flock of 30 birds was seen over Ras Tanura (F. E. Warr). One was also seen travelling aboard the ship *Sea Swallow* out of Colombo and left the ship in the south Red Sea. A few were present in the Gulf of Aqaba town of Haql in 1989 (M. C. Jennings). There are no records of the species more than a few kilometres from the coast.

### *Oman*

Meinertzhagen (1924) described House Crows, resembling *C. s. zugmayeri*, as occasional visitors to Muscat from their native Iran. Later (Meinertzhagen 1954) he noted that they were restricted to the coastal strip. Since then, they have extended only a few kilometres inland, particularly where there are extensive construction works (Walker 1981). Gallagher & Woodcock (1980) regarded the birds as being of the race *zugmayeri* or intergrades with the race *splendens*, and noted that according to locals they had been introduced to control ticks on livestock. Occasional sightings on the island of Al Masirah, 300 km further south, may be as a result of winter movement (Gallagher & Woodcock 1980). They remain absent from southern Oman, however.

### *United Arab Emirates*

Jennings (1981b) found House Crows to be abundant in the late 1960s and early 1970s in coastal villages with palm plantations, along the eastern coast. However, by February 1992 their numbers had become much reduced. M. C. Jennings noted that this coincided with the development of the area from a simple fishing community to a modern residential/tourist area with a corresponding improvement in public hygiene, and a consequent decline in food availability for House Crows. In 1987, they were reported on Das Island, at Abu Dhabi airport and Hatta, Huwailat, a few kilometres inland. Present in Dubai since 1977, they are now locally common there (Richardson 1990).

### *Bahrain*

Although first reported in 1961, House Crows were only recorded intermittently through the 1970s (Nightingale & Hill 1992); but since 1983 they appear to be resident in villages of north Bahrain and there have been periodic breeding records. Small parties are frequently seen in port areas and ship-assisted introductions may occur periodically.

### *Kuwait*

House Crows were first recorded in 1972 and bred in 1983 and 1984. Pilcher (1989) does not, however, consider them as resident and suggests that their seasonal occurrence may reflect migrations from the native population in neighbouring Iran.

### *Yemen (formerly PDRY and North Yemen)*

Barnes (1893) reported seeing House Crows in Aden (formerly in PDRY) in 1866 and 1892 and stated that they had been introduced in

the 1840s by an officer from the Bombay Infantry. It is widely believed locally that they were brought there by Parsee immigrants from India to devour the bodies of their dead (Ash 1984). By the 1960s they were common breeding residents in both Aden and Shaykh Uthman and their numbers have now reached pest proportions so that a poisoning programme has been in operation for some years (M. C. Jennings). In Oct–Nov 1989, Jennings found House Crows to be more common at Lahej, 30 km inland, than they were in Aden. A few were also seen 10 km north of Lahej, 40 km from the coast, and constitute the most inland population of the species in Arabia. Elsewhere in the former PDRY, Jennings recorded small numbers of House Crows at Shagra and Mukulla, and a single bird at Ghaydah; these lie 100, 500 and 800 km east of Aden, respectively.

According to Jennings, they have been breeding residents in Hodeidd (formerly in North Yemen) since 1975 and, by 1985, two separate colonies had become established. They also appeared in Al Khawka, on the coast 100 km south, in 1983.

### *Israel and Jordan*

House Crows were recorded in Elat, Israel, in 1976 and bred the following year. They are frequently seen flying between Elat and Aqaba in nearby Jordan where they have also bred (Krabbe 1980). Paz (1987) considered them as sporadic in Elat, but they appear to be established and increasing in Aqaba (A. A. Braunlich). Though there are several reports for Sinai, only that of a pair seen at Nabq in March 1984 is definite (Goodman & Meininger 1989).

## Mediterranean Region

### *Gibraltar*

Between 26 March and 5 April 1991 a single bird was recorded on the most southerly tip of the rock, and was noted in *British Birds* (Anon 1992). C. Perez of the Gibraltar Ornithological & Natural History Society stated that the bird was first seen at Point Europa, the most southerly tip of the Island, indicating that it flew ashore from a ship at the first sight of land. Its arrival coincided with the return of a number of British and Canadian warships from the Gulf conflict, and it is likely that the bird originated from the well established population at Suez, unless it was kept as a pet from the Gulf. The bird was wary of the many tourists who visit Europa Point but remained there, always close to the seashore, throughout its brief stay. It was seen occasionally flying out to sea but aborting the flight after 200 m; its final fate is unknown. This represents as yet the only record of the species in the region.

## Africa

### *Egypt*

It appears that House Crows first appeared in Suez in 1922, but they were misidentified as Jackdaws until Goodwin (1976) identified them correctly from photographs in 1947. Meininger *et al.* (1980) and



Bijlsma & Meininger (1984) described the spread of the House Crow (ssp. *splendens*) in the area and estimated the 1981 population at 800–850. By 1979, there were breeding populations in several towns along the Red Sea coast from Ismailiya to Quseir 300 km to the south (Goodman & Meininger 1989).

### *Sudan*

House Crows must have been present in Port Sudan long before 1941, when a breeding colony was recorded in the girders of a bridge near the harbour (Kinnear 1942). They have since become numerous in the town (Clarke 1967).

### *Ethiopia*

Urban & Brown (1971) stated that House Crows "may occur" in Mitsiwa (Massawa); they were abundant there by 1984. According to A. Mahamued, they were introduced during the British occupation of Eritrea after the Second World War. Though they reached Assab more recently, they are now plentiful there (R. T. Wilson), and there is an unconfirmed 1985 report of several House Crows at Asmara (A. Muahamed).

### *Djibouti*

Clarke (1967) found several House Crows in Djibouti Town in May 1958 and assumed that they had spread from Aden, 240 km to the northeast. Ash (1985) described them as "extremely common" in the town and on the beach in 1978. By 1987, the population stood at several thousand and was increasing so that control measures were being considered (R. T. Wilson). Welch & Welch (1984) reported about 18 in Obock, a small town on the opposite shore of the Golfe de Tadjou.

### *Somalia*

The arrival in Nov 1950 of four House Crows (ssp. *protegatus*) on a passenger ship from Colombo and their disembarkation at Cape Guardafui is well documented (Davis 1951), though they do not appear to have become established. Ash (1985) referred to an unconfirmed report from 1972 of House Crows damaging dates further north at Buthar, but a search in 1979 revealed no evidence of a population. The species was, however, observed in the small fishing village of Zeilah, in the extreme north, and may well have spread from Djibouti some 50 km distant (Chazee 1987). They are apparently absent from Mogadishu (H. F. Schels).

### *Kenya*

Since their arrival in Mombasa in the 1940s, probably on a ship from the long established population in Zanzibar, House Crows (ssp. *splendens*) have proliferated to pest proportions (Ryall & Reid 1987). In 1991, the population there was estimated at over one million (D. G. Kimanga). Their progressive expansion of range in the area and the establishment in 1977 of a disjunct population in Malindi, also on the coast 100 km further north, is described in detail by Ryall (in press).

Several solitary birds have been reported recently at towns well inland including Nairobi, 500 km NW of Mombasa. These undoubtedly originate from releases, accidental or deliberate, and none appear to have become established to date. Recent reports from more distant locations such as Kisumu and Wajir (G. R. Cunningham van Someren) almost certainly result from misidentification of other *Corvus* species.

Their proliferation has been linked with a decline in the native avifauna in Mombasa, as elsewhere (Ryall 1992). A control programme launched by the Mombasa Municipal Authorities in 1985 met with some success, but appears to have lost impetus since 1988, resulting in a rapid build-up in House Crow numbers (pers. obs.).

### Zanzibar & Pemba Island

The introduction of *C. s. splendens* from Bombay in the 1890s by Dr Charlesworth and Sir Gerald Portal, to clean up the refuse of Zanzibar Town (Vaughan 1930), resulted in the establishment of the first population of the species in the African region and has served as a nucleus for introductions to the mainland. Pakenham (1979) related their progressive spread to other settlements on the island. Early attempts at control had little effect on the large population in Zanzibar Town, but a recently launched programme is meeting with considerable success. There has been a concurrent recovery of the native avifauna which had declined during the House Crow's proliferation (Alexander 1991).

Long (1981) stated, on the strength of an unpublished communication from J. G. Williams in 1962, that House Crows were present on Pemba Island, but Pakenham (1979) and other visitors did not find them there. This absence was confirmed in 1986 (A. Southwell) and in 1988 (pers. obs.).

### Mainland Tanzania

In 1955, R. Fuggles-Couchman observed a few House Crows, presumably originating from Zanzibar, on a small island adjacent to Dar-es-Salaam. K. M. Howell first saw them in Dar-es-Salaam proper in 1972, where they have subsequently proliferated and spread. By 1988, they numbered 15–20,000 (N. E. Baker) and had spread about 30 km northward and westward. Manyanza (1989) provides information on their distribution in the city. A disjunct population, long established in the coastal town of Tanga, 200 km to the north, probably derives from a separate introduction from Zanzibar. They are still absent from Mtwara, on the coast in the extreme south (K. M. Howell).

### Mozambique

In the early 1950s, Dr A. A. da Rosa Pinto shot a House Crow (ssp. *splendens*) on Bazaruto Island, north of Inhambene (P. A. Clancey), but this appears to have been an isolated bird, no further records having arisen from the area. J. C. Sinclair observed a small breeding population on Inhaca Island, 200 km to the south, in late 1976, which according to local inhabitants had been established for many years

(Bijlsma & Meininger 1984). W. L. N. Tickell counted about 50 there in the mid-1980s but found none in nearby Maputo, although Sinclair had seen a few there previously.

### *Republic of South Africa*

The arrival at Durban in 1972 of two House Crows, flying in from the sea, presumably from a ship, was described by Sinclair (1974). They remained in the docks for some weeks until joined by a further three birds, and then moved from the area. Clancey (1974) later saw five including a recently fledged juvenile, though nesting was not observed until 1975 (Cyrus & Robson 1980). Despite attempted eradication by the Natal Parks Department, the species quickly spread and is now well established in the Indian suburbs near Reunion Airport where a roost of more than 500 birds gathers each evening (P. A. Clancey). They are also present in the north of the city, and W. L. N. Tickell estimated the total population in 1987 to be 800–1000 birds.

House Crows also appeared in East London, 500 km to the south, in Nov 1975 (Cyrus & Robson 1980), presumably through a separate introduction. A further bird was recorded in Cape Town docks in Oct 1977 (Bijlsma & Meininger 1984).

## Islands of the Indian Ocean

### *The Seychelles*

In 1970, a single House Crow was seen flying from a ship from Bombay to St Anne Island, close to Mahe (Feare & Watson 1984), and another was seen on Bird Island by C. J. Feare in 1978. A further five crows reportedly arrived on Mahe from an Indian cargo vessel in 1977 (Ryall 1987). Despite periodic attempts at control and a bounty of 500 rupees, the crows numbered about 30 in 1986 (L. Chong Seng) and, having later dispersed, have established a widespread albeit sparse population in Mahe (A. P. Skerrett). They are also present on Praslin and breeding has been recorded on Silhouette. Recently, a single bird arrived on the nature reserve of Aride Island (Skerrett & Skerrett 1992).

### *Mauritius*

According to Lever (1987), House Crows were first reported by immigrant Indians in 1810 when the island became a British colony, and further birds appear to have been introduced from Indian vessels in 1910 and apparently on a number of subsequent occasions. Diamond (1987) described their progressive spread to other settlements. Efforts to control them met with partial success though they persisted at Roche Bois until reduced to a single bird during a cyclone in 1947. However, a further two birds flew ashore from the SS *Ikauna* from Colombo in 1950. Feare & Mungroo (1990), in a detailed study of their distribution as part of a new control programme, found House Crows to be restricted to the most populous areas, the total population amounting to 400–600 birds.

### *Laccadive Islands*

The population is not native though there has been some debate as to its origin. Ali & Ripley (1972) ascribed the House Crows to the race *splendens*, but Goodwin (1986) identified them as the Maldivian subspecies, *maledivicus*.

### *Andaman Islands*

Colonel P. C. Tyler released House Crows at Port Blair, South Andaman, about 1860 during the time of the convict settlement for sanitary reasons, but they failed to become established (Beaven 1867, Ball 1873). More recently, Pittie (1988) found 6–10 House Crows resident in the grounds of Bay Island Hotel in Port Blair. Their dark neck indicated that they were probably *C. s. protegatus* of Sri Lankan origin or *C. s. insolens* from Burma.

## East Asia & Australia

### *Malaysia*

According to Ward (1968) there was a breeding population in Klang, Selangor, as early as 1898. A deliberate introduction of 56 birds from Sri Lanka in 1903, to combat caterpillar plagues, is also documented (Willey *et al.* 1903). Their progressive dispersion through Selangor and establishment in Kuala Lumpur is described by Medway & Wells (1976). House Crows have continued to spread, particularly along the western coast, and now range from Jeram in the north to Malacca in the south and inland to Kulim. There is also a disjunct colony at Johor Bahara on the southern border adjacent to Singapore. By 1986 the Klang population numbered about 20,000 and that at Kuala Lumpur, up to 6000 (Lever 1987). D. R. Wells' monitoring of the House Crow population reveals that populations are still increasing and the spread along the western coast of Malaysia and inland continues unabated.

### *Singapore*

A small colony of House Crows was discovered in trees in the docks in 1948 (Gibson-Hill 1950), and by the late 1960s a roost of 200–400 birds had developed at the same site (Ward 1968). They most probably arrived on ships (Medway & Wells 1976). In 1987, C. J. Hails estimated the population at between 1800 and 3700, the lower than expected number being attributable to efficient refuse clearance on the island. He thought that most of the crows were flying in from roosts in adjacent Johor Bahara, Malaysia, where ample refuse has allowed a substantial population to develop.

### *Thailand*

Though Peters (1962) suggested that the House Crows (of the race *insolens*) present in southwestern Thailand may have been introduced by man, the contention was not referred to by Lekagul & Cronin (1974) who described them as rare residents.



### *Hong Kong*

Solitary House Crows of unspecified race and unknown origin were recorded at Kowloon Tong in Nov 1974 and Mai Po in Nov 1980. As Chalmers (1986) indicated, like many other exotics in the area, they may have been released by bird collectors. D. S. Melville also recalled the shipment of about 100 House Crows in the mid-1970s for use in the making of a film, though none apparently escaped. The coastal location of these sites makes ship-borne transport a likely origin in both cases; perhaps from the introduced population on the Malaysian Peninsula. A 1989 record of two House Crows in Kowloon Tong may have resulted from a deliberate release as this area has a high population of Indians (D. S. Melville).

### *Australia*

House Crows have arrived in Western Australia and Victoria on many occasions during this century on board ships from India and Sri Lanka, but largely due to the vigilance of the authorities, who shot 31 in W Australia between 1950 and 1975 (Frith 1976/7), they have failed to become established there. Several of these ship-borne arrivals to Western Australia are very well documented, e.g. Hylton (1927), McGill (1949), Ruddiman (1952). In Victoria, Gibson (1961) reported the arrival of three House Crows at Geelong, near Melbourne, on a ship from Colombo. Further birds were sighted in the Melbourne area in the years following (Smith & Anderson 1967, Long 1967).

## **Conclusions**

House Crows are spreading in most of their introduced range. As commensals to man they flourish in areas of poverty and disorganisation. In Africa, human populations are burgeoning and the House Crow's range is expanding accordingly along coastal settlements and inland. Ultimately they are likely to arrive in Madagascar via ships from the Indian Subcontinent, as was the case in the Seychelles, or from colonies on the African mainland. The spread of House Crows to northern Egypt has facilitated their appearance in the Mediterranean region; at Gibraltar in 1991. In Malaysia too they are expanding their range and will probably eventually spread by ship-assisted passage to the more populous parts of Sumatra only 100 km across the Straits of Malacca from Klang.

The pest status of the House Crow is universally recognised (Ryall in press) and control measures have been taken in many of the locations to which they have been introduced. They are crop raiders, killers of livestock, stealers of food and, concomitant with their proliferation, there is usually a marked decline in native avifauna. Fortunately, the potential threat to the endemic avifauna has been recognised in Mauritius and a control programme has been launched, but the population in the Seychelles continues to spread unabated. The potential establishment of the House Crow in Madagascar calls for constant vigilance on the part of the authorities and international conservation bodies.

From the human perspective, it is Africa where the House Crow should be viewed with most concern. The poverty and overcrowding in many areas is an ideal breeding ground for House Crows, exacerbating existing problems. Their spread is being facilitated further by the burgeoning human settlements along highways all over that continent.

Measures need to be taken to reduce House Crow populations in many areas, and to put a halt to the dispersion of the species particularly on board ships from India and Sri Lanka.

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